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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/707,099	11/20/2003	Michael Carson	60680-1818	1098
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10291	7590	06/10/2005
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RADER, FISHMAN & GRAUER PLLC  
 39533 WOODWARD AVENUE  
 SUITE 140  
 BLOOMFIELD HILLS, MI 48304-0610

EXAMINER
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SHARP, JEFFREY ANDREW

ART UNIT	PAPER NUMBER
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3677

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/707,099	<b>Applicant(s)</b> CARSON, MICHAEL	
	<b>Examiner</b> Jeffrey Sharp	<b>Art Unit</b> 3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Status of Claims*

- [1] Claims 1-16 are pending.

### *Claim Objections*

- [2] Claims 9 and 10 are objected to because of the following informalities:

There is insufficient antecedent basis for the limitation "said generally rectangular projection" in claim 9.

There is insufficient antecedent basis for the limitation "said rectangular projection" in claim 10.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

- [3] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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[4] Claims 1-5 and 7-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Norwood US-RE14,969. Refer to Figure 4.

In short, Norwood teaches a piston ring (5) alone and in combination with a piston (2) having seating grooves (4) and cylinder (1); said piston ring (5) having a generally annular body, tapered outer peripheral face (7) forming a gap for oil retention, and a rectangular projection (71,73) extending therefrom at an upper surface (top of 5 in Figure 4) of said piston ring (5). An outer surface (73) of the projection is parallel with a surrounding cylinder (1). The projection (71,73) defines a ledge extending radially from said outer peripheral face (7) and helps minimize the gap caused by the outer peripheral face (7).

See also, Norwood US-1,404,540, which also anticipates the abovementioned claims 1-5 and 7-15.

***Claim Rejections - 35 USC § 103***

[5] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[6] Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admission of prior art (Figures 1 and 2) in view of any one of: Norwood US-1,404,540, Norwood US-RE14,969, Moore US-1,471,700, Wilson US-1,534,198, Bonsky US-1,557,256, or Norton US-1,586,459.

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Applicant substantially teaches each and every limitation in the claims. In Figures 1 and 2, Applicant admits that the prior art already teaches a piston ring (10) alone and in combination with a piston (24) having seating grooves (26) and cylinder (20); said piston ring (10) having a generally annular body, tapered outer peripheral face (12), and a generally hook-shaped groove (14).

However, Applicant fails to disclose expressly, that the prior art teaches a generally rectangular projection (116 Figures 3, 4, and 5) extending from an upper surface of said piston ring.

Norwood '540 suggests a rectangular projection (8) extending at an upper surface of the piston ring. An outer surface of the projection (8) is parallel with a surrounding cylinder (5). The projection (8) defines a ledge extending radially from said outer peripheral face (16) and helps minimize the gap (14) caused by the outer peripheral face (16).

Norwood '969 suggests a rectangular projection (71,73) extending at an upper surface (top of 5 in Figure 4) of the piston ring (5). An outer surface (73) of the projection is parallel with a surrounding cylinder (1). The projection (71,73) defines a ledge extending radially from said outer peripheral face (7) and helps minimize the gap caused by the outer peripheral face (7).

Moore suggests a rectangular projection (above 3) extending at an upper surface of the piston ring (1). An outer surface of the projection is parallel with a surrounding cylinder adjacent the piston (6). The projection defines a ledge extending radially from said outer peripheral face (tapered wall of 3) and helps minimize the gap caused by the outer peripheral face.

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Bonsky suggests a "generally" rectangular projection (6) extending at an upper surface of the piston ring (5). An outer surface of the projection (6) is parallel with a surrounding cylinder (2). The projection (6) defines a ledge extending radially from said outer peripheral face (tapered face of 7) and helps minimize the gap caused by the outer peripheral face.

Wilson suggests a rectangular projection extending at an upper surface of the piston ring (R). An outer surface of the projection is parallel with a surrounding cylinder (B). The projection defines a ledge extending radially from said outer peripheral face (6) and helps minimize the gap caused by the outer peripheral face (6).

Norton suggests a rectangular projection (15) extending at an upper surface (top of 12) of the piston ring (12). An outer surface of the projection (15) is parallel with a surrounding cylinder (10). The projection (15) defines a ledge extending radially from said outer peripheral face (17) and helps minimize the gap caused by the outer peripheral face (17).

At the time of invention, it would have been obvious to one of ordinary skill in the art, to modify the admitted prior art piston ring disclosed by Applicant in Figures 1 and 2, by employing a rectangular projection extending from an upper surface as suggested by all of the abovementioned references, in order to provide a better means for 1) captivating oil around the piston ring for lubrication, 2) displacing or reducing internal combustion forces on the lip seal portion of the ring, 3) creating a better surface contact between the piston ring and cylinder, 4) preventing oil from further penetration into the combustion chamber.

See also, GB-992,123 element 12, US-3,563,442 to Kretchman element 72, and US-2,340,466 to Gosling element 32, which also suggest adding a projection (non-rectangular) to similar tapered piston rings having hook-shaped grooves.

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***Conclusion***

[7] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (571) 272-7074. The examiner can normally be reached 7:00 am - 5:30 pm Mon-Thurs.

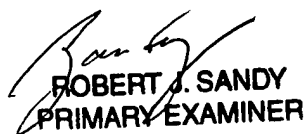
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (571) 272-7075. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS



6/1/05



ROBERT J. SANDY  
PRIMARY EXAMINER